Bridge No. L-2182
Spanning an unnamed stream at Township Route No. 1, 1500 feet east of the junction of Township Route No. 3 and Township Route No. 1
Kanaranzi vicinity
Rock County
Minnesota

HAER No. MN-79

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Engineering Record
National Park Service
Department of the Interior
Denver, Colorado 80225-0287

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HISTORIC AMERICAN ENGINEERING RECORD

BRIDGE NO. L-2182

Location:	Spanning an unnamed stream at Township Route No. 1, 1500 feet east of the junction of Township Route No. 3 and Township Route No. 1, Kanaranzi vicinity, Rock County, Minnesota.
UTM:	14.73720.4822780
	USGS, Ellsworth, Minn. - Iowa Quadrangle, 1967
Date of Construction:	c. 1920
Present Owner:	Kanaranzi Township
Present Use:	vehicular bridge
Significance:	Probably designed by noted Rock County bridge contractor Perley N. Gillham, Bridge No. L-2182 is a good example of a vernacular reinforced-concrete arch bridge constructed by local funding in Minnesota.
Historians:	Frances P. Alexander, Holly K. Chamberlain, and Olga Dunlop, The 106 Group Ltd., St. Paul, Minnesota, June 1994.

LOCATION DESCRIPTION

Bridge No. L-2182 is located on Township Route No. 1, 1500 feet east of the junction of Township Route No. 3 and Township Route No. 1, Kanaranzi vicinity, Rock County, Minnesota. The bridge carries Township Route No. 1, a two-lane, gravel, rural road, over a small unnamed stream in Section 25, Township 101, Range 44 West. The junction of Township Route No. 3 and County-State Aid Highway 3 is located 1.8 miles northwest of the bridge. Interstate 90 is located approximately four miles to the north. Kanaranzi Township is the southeasternmost township in the county. Rock County is situated in the extreme southwest corner of Minnesota, where the state borders South Dakota and Iowa. The environment surrounding the bridge is rural and agricultural, like most of this prairie, farming county.

PHYSICAL DESCRIPTION

Bridge No. L-2182 is a small, reinforced concrete, elliptical arch bridge. This closed-spandrel bridge has cast-in-place, reinforced concrete abutments. There are no wingwalls or approach spans. Crossing the stream on a 90 degree skew, Bridge No. L-2182 measures 36.5 feet in total length with a width of 17.2 feet. The single span measures 33.8 feet. The bridge has solid concrete railings with cylindrical end and center posts. The railings are two feet tall and are arched to follow the line of the arch span. There are no sidewalks.

HISTORICAL INFORMATION

Bridge No. L-2182 was constructed circa 1920 at the behest of Kanaranzi Township, about midway through a period of intense bridge building activity by the township.[1] This small span is representative of the type of bridge being constructed with township funding at the time. The township was able to engage in a heightened level of locally-funded bridge construction over smaller streams due to state- and federally-funded activity building the larger bridges associated with more major roads. This situation was created by various pieces of state and federal legislation between 1898 and 1916 which cumulatively mandated the designation of specific automobile travel routes as

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[1]The bridge's name is derived from its official Minnesota Department of Transportation (Mn/DOT) designation. The 1920 date is supported by Mn/DOT records, such as highway structural inventory forms. The time frame is further supported by evidence contained in Report of the Minnesota Commissioner of Highways, 1923-1924, which states that no bridge building activity took place in Rock County from 1922 through 1924.

those which would be more highly developed for swifter and easier intrastate and interstate travel and receive state and federal aid

Perley N. Gillham

The design of this bridge is attributed to local bridge contractor Perley N. Gillham, who was active in this part of Minnesota, as well as nearby areas of South Dakota and Iowa, at the presumed date of bridge construction. Although no documentary information is known to exist, the bridge is visually similar to spans known to have been designed and built by the prolific Gillham. While displaying less ornamentation than is typical of his work, Bridge No. L-2182 does exhibit Gillham's signature graceful arch and was built during his active period in this locale. Logically, a small, out-of-the-way span such as this would not necessarily have been allotted a large amount of funding for decoration. The bridge is not signed, but other bridges known to have been constructed by Gillham are not signed either. On balance, L-2182 can be presumed to be part of the body of vernacular work of this skilled local contractor.

Gillham (1855 - c. 1928) was a Wisconsin native who moved to Minnesota in 1875 to join his brother Edwin, who was already living and working in Rock County. Perley Gillham became active in building construction and repair in both public and private sectors. Public records indicate that he gradually worked his way up from minor repair jobs to more major undertakings such as eventually serving as project supervisor for the construction of the Rock County Courthouse (1888) and as the contractor for the Rock County Community Library (1904), both listed on the National Register of Historic Places.

Gillham's first known bridge-related work dates to 1883, when he was hired by the county to repair a bridge. He apparently moved into bridge design and construction about midway in his career as the date of his first known designed and constructed bridge is 1901. That bridge, No. L-2315, is listed on the National Register of Historic Places, as are three other of Gillham's Rock County bridges, numbers L-2316, L-2162, and L-4646. His last known bridge was built in 1928. He built at least 13 bridges in Rock County.

Reinforced Concrete Arch Bridges

The concept of using reinforced concrete in construction projects grew out of earlier experiments with reinforcing masonry with iron to increase its

strength.[2] Reinforced concrete, in the form of a wire grid imbedded in a slab, was first patented in 1854 by William B. Wilkinson in England. Advances in technique and application soon followed, on both sides of the Atlantic. Thaddeus Hyatt, an American living in London, concluded a series of pioneering experiments in 1877, publishing the results that year in the influential An Account of Some Experiments with Portland Cement Concrete, Combined with Iron, as a Building Material.[3]

Bridge engineers first experimented with the new reinforcing practices in France and Germany in the 1880s, and had constructed a variety of arches by the middle of the decade. The first American application of this technique, which offered engineers the opportunity to build lower-cost and more efficient spans because they required less concrete to carry the same amount of weight, came in 1889 with the construction of the Alvord Lake Bridge in San Francisco's Golden Gate Park. Designed by Ernest L. Ransome, this bridge is still in use.[4] The reinforced concrete arch became a dominant choice for highway spans in the United States after the turn of the century, and continued to be so until the mid-1930s, when burgeoning highway transportation needs mandated even more economical modes of reinforced-concrete bridge construction, such as the use of girders and rigid frames.[5]

Alterations

The bridge retains fair design integrity but has suffered some damage and structural deterioration. The east abutment appears to have new concrete around it. The tops of the decorative middle posts of the bridge railings have

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[2]For a good explanation of the history and properties of concrete, see Jeffrey A. Hess, "Reinforced-Concrete Highway Bridges in Minnesota, 1940-1945," National Register of Historic Places Multiple Property Documentation Form, 1988, Section E.

[3]Carl W. Condit, American Building, (Chicago: University of Chicago Press, 1982), pp. 168-169.

[4]Ibid., p. 173.

[5]Jeffrey A. Hess, "Reinforced-Concrete Highway Bridges in Minnesota, 1940-1945," National Register of Historic Places Multiple Property Documentation Form, 1988, Section E, p. 6.

been broken off, presumably by automobile impacts.[6] The concrete is cracked in several locations, exposing the reinforcing bar in the structural slab in one instance. The reinforcing rods are visible on the north rail.

PROJECT INFORMATION

This documentation was prepared in July, 1994 at the request of the Rock County Highway Department in compliance with Section 106 of the National Historic Preservation Act of 1966. Bridge No. L-2182 has been slated for replacement by the Rock County Highway Department due to structural deficiencies. Project historians were Frances P. Alexander, Holly K. Chamberlain, and Olga Dunlop of The 106 Group, Ltd., Dacotah Building, 370 Selby Avenue, St. Paul, Minnesota, 55102. Project photographer was Mike Whye.

SOURCES

Condit, Carl W. American Building. Chicago: The University of Chicago Press. 1982.

Hess, Jeffrey A. "Reinforced-Concrete Highway Bridges in Minnesota, 1940-1945." National Register of Historic Places Multiple Property Documentation Form, Section E. 1988.

Minnesota Department of Transportation Records.

Minnesota Highway Department. Report of the Minnesota Commissioner of Highways for 1923 - 1924. 1 February 1925.

The 106 Group, Ltd. Historical Context, Revised First Draft, Minnesota Statewide Survey of Selected Bridges. September 1993.

Rock County Highway Department Records.

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[6]R.M. Frame, III, Minnesota Reinforced-Concrete-Bridge Field-Survey Worksheet. 18 November 1987.

LIKELY SOURCES NOT YET INVESTIGATED

Future researchers seeking additional information on Bridge No. L-2182 may wish to consult records of the Rock County Commissioners meetings and local newspapers for years other than 1920, the presumed year of construction. The minutes for 1920, and the newspapers for that year, were examined for this project but did not contain any relevant information. However, if a different date of bridge construction is ascertained later on, a search of the commissioners' minutes and newspapers for the new time frame might yield useful data. The commissioners' records are held at the Rock County Courthouse. Copies of the local newspaper of the time, the Rock County Star Herald, are held by the Rock County Community Library.

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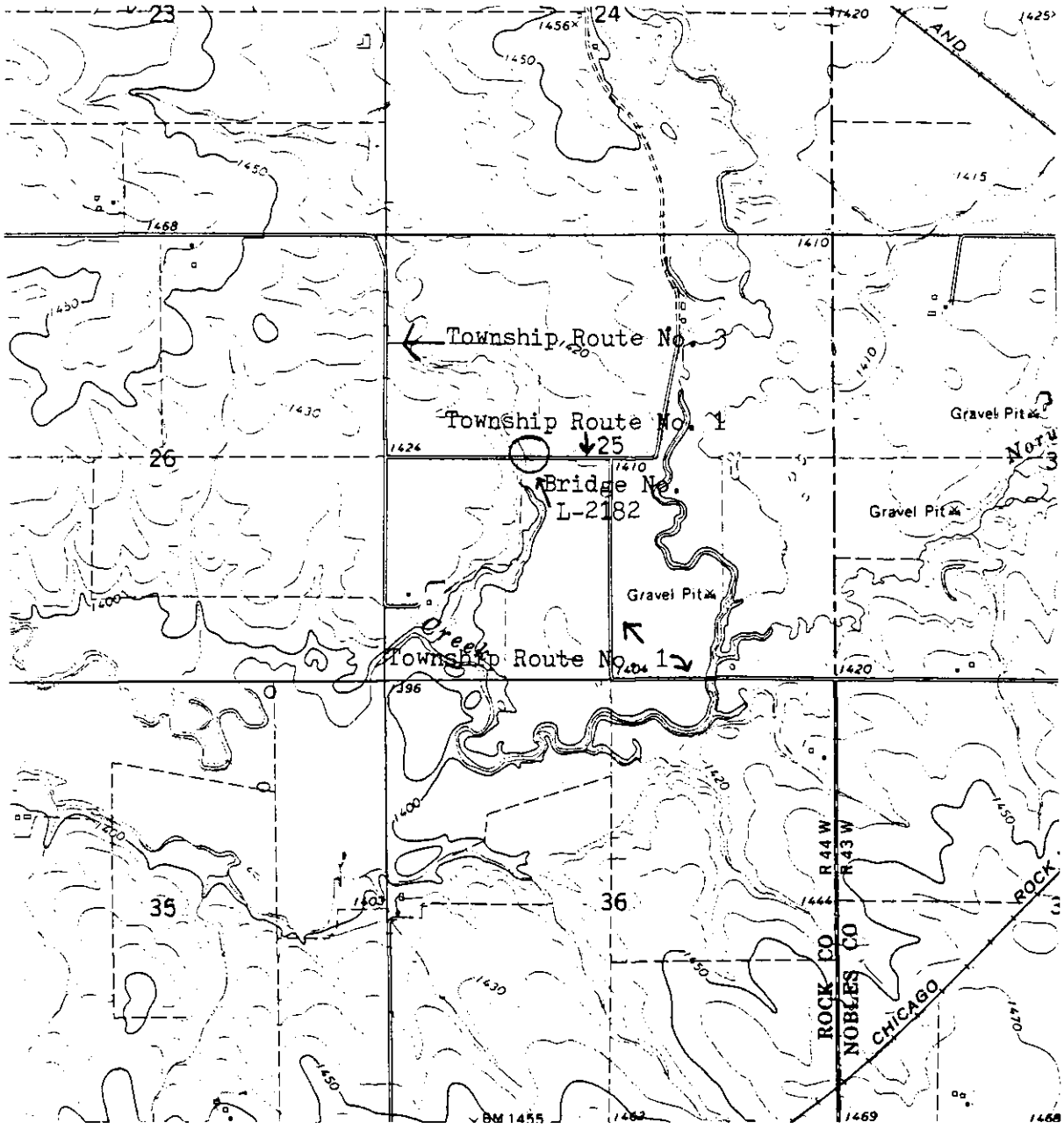

North ↑

Source: USGS Ellsworth, Minn. - Iowa Quadrangle, 7.5, 1967

Scale: 1:24,000